

## CLAIMS

What is claimed is:

1. A method for controlling the calibration of an instrument, comprising:
  - 2 determining instrument calibration status, wherein the determination is
  - 4 made automatically by the instrument examining calibration history data
  - 6 stored by the instrument; and
  - 8 when instrument calibration is past due:
    - 10 notifying a user that the calibration is past due, wherein the
    - 12 notification is initiated automatically by the instrument; and
    - 14 when the user decides to make the measurement with the out-of-
    - 16 calibration instrument,
    - 18 making the measurement;
    - 20 otherwise:
      - 22 removing the instrument from measurement service;
      - 24 calibrating the instrument;
      - 26 updating the calibration history stored by the instrument
      - to reflect a new time that a new calibration is due; and
      - returning the instrument to measurement service;

otherwise:

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maintaining the instrument in measurement service.

2. The method as recited in claim 1, further comprising:

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before the step of notifying a user that the calibration is past due,  
activating a restriction inhibiting the instrument from making a  
measurement, wherein the restriction is automatically activated by the  
instrument;

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before the step of making the measurement, manually overriding the  
restriction; and

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after the step of updating the calibration history stored by the instrument,  
removing the restriction inhibiting the instrument from making a  
measurement.

3. The method as recited in claim 1, wherein the determination of instrument  
calibration status is initiated at a preselected clock time.

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4. The method as recited in claim 1, wherein the determination of instrument  
calibration status is initiated by the step of making the measurement.

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5. The method as recited in claim 1, further comprising:

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after the step of notifying a user that the calibration is past due, obtaining  
the measurement uncertainty; and

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informing the user of the measurement uncertainty.

- 2 6. The method as recited in claim 1, wherein the step of determining  
instrument calibration status comprises determining the calibration status  
4 for only those paths belonging to a sub-set of all measurement paths of the  
instrument.
- 2 7. The method as recited in claim 6, wherein the step of calibrating the  
instrument comprises calibrating only those paths belonging to the sub-set  
of all measurement paths of the instrument.
- 2 8. The method as recited in claim 7, wherein the step of updating the  
calibration history stored by the instrument comprises updating the  
4 calibration history only for those paths belonging to the sub-set of all  
measurement paths of the instrument.
- 2 9. The method as recited in claim 1, wherein the step of determining  
instrument calibration status comprises determining the calibration status  
4 for only those types of measurements belonging to a sub-set of all  
measurement types that the instrument can make.
- 2 10. The method as recited in claim 9, wherein the step of calibrating the  
instrument comprises calibrating only those types of measurements  
4 belonging to the sub-set of all measurement types that the instrument can  
make.
- 2 11. The method as recited in claim 10, wherein the step of updating the  
calibration history stored by the instrument comprises updating the  
4 calibration history only for those types of measurements belonging to the  
sub-set of all measurement types that the instrument can make.

- 2 12. The method as recited in claim 1, wherein the step of determining  
instrument calibration status comprises determining the calibration status  
for only frequencies belonging to a sub-set of all frequencies or frequency  
4 ranges for which the instrument is capable of making a measurement.
- 2 13. The method as recited in claim 12, wherein the step of calibrating the  
instrument comprises calibrating for only frequencies belonging to the  
sub-set of all frequencies or frequency ranges for which the instrument is  
4 capable of making a measurement.
- 2 14. The method as recited in claim 13, wherein the step of updating the  
calibration history stored by the instrument comprises updating the  
calibration history for only frequencies belonging to the sub-set of all  
4 frequencies or frequency ranges for which the instrument is capable of  
making a measurement.
- 2 15. The method as recited in claim 1, further comprising:  
at preselected times prior to calibration due time for the instrument,  
4 notifying the user of calibration due time, wherein the notification is made  
automatically by the instrument.
- 2 16. The method as recited in claim 1, further comprising:  
before the step of calibrating the instrument, obtaining measurement  
4 history data for the instrument, wherein the measurement history is stored  
by the instrument.
- 2 17. The method as recited in claim 16, wherein the step of calibrating the  
instrument comprises calibrating those paths belonging to a sub-set of all

4 measurement paths of the instrument that conform to a preselected measurement history profile.

2 18. The method as recited in claim 16, wherein the step of calibrating the instrument comprises calibrating those types of measurements belonging to a sub-set of all measurement types that the instrument can make that conform to a preselected measurement history profile.

2 19. The method as recited in claim 16, wherein the step of calibrating the instrument comprises calibrating those frequencies belonging to a sub-set of all measurement frequencies or frequency ranges for which the instrument is capable of making a measurement that conform to a preselected measurement history profile.

2 20. A computer readable memory device embodying a computer program of instructions executable by the computer, the instructions comprising:

4 determining instrument calibration status, wherein the determination is made automatically by the instrument examining calibration history data stored by the instrument; and

8 when instrument calibration is past due:

10 notifying a user that the calibration is past due, wherein the notification is initiated automatically by the instrument; and

12 when the user decides to make the measurement with the out-of-calibration instrument,

16 making the measurement;

otherwise:

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removing the instrument from measurement service;

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calibrating the instrument;

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updating the calibration history stored by the instrument

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to reflect a new time that a new calibration is due; and

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returning the instrument to measurement service;

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otherwise:

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maintaining the instrument in measurement service.

21. The computer readable memory device as recited in claim 20, further comprising:

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before the instruction of notifying a user that the calibration is past due, activating a restriction inhibiting the instrument from making a measurement, wherein the restriction is automatically activated by the instrument;

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before the instruction of making the measurement, manually overriding the restriction; and

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after the instruction of updating the calibration history stored by the instrument, removing the restriction inhibiting the instrument from making a measurement.

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- 2           22.     The computer readable memory device as recited in claim 20, wherein the determination of instrument calibration status is initiated at a preselected clock time.
- 2           23.     The computer readable memory device as recited in claim 20, wherein the determination of instrument calibration status is initiated by the instruction of making the measurement.
- 2           24.     The computer readable memory device as recited in claim 20, further comprising:
- 4                     after the instruction of notifying a user that the calibration is past due, obtaining the measurement uncertainty; and
- 6                     informing the user of the measurement uncertainty.
- 2           25.     The computer readable memory device as recited in claim 20, wherein the instruction of determining instrument calibration status comprises determining the calibration status for only those paths belonging to a sub-set of all measurement paths of the instrument.
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- 2           26.     The computer readable memory device as recited in claim 25, wherein the instruction of calibrating the instrument comprises calibrating only those paths belonging to the sub-set of all measurement paths of the instrument.
- 2           27.     The computer readable memory device as recited in claim 26, wherein the instruction of updating the calibration history stored by the instrument comprises updating the calibration history only for those paths belonging to the sub-set of all measurement paths of the instrument.
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- 2           28.     The computer readable memory device as recited in claim 20, wherein the  
instruction of determining instrument calibration status comprises  
4           determining the calibration status for only those types of measurements  
belonging to a sub-set of all measurement types that the instrument can  
make.
- 2           29.     The computer readable memory device as recited in claim 28, wherein the  
instruction of calibrating the instrument comprises calibrating only those  
4           types of measurements belonging to the sub-set of all measurement types  
that the instrument can make.
- 2           30.     The computer readable memory device as recited in claim 29, wherein the  
instruction of updating the calibration history stored by the instrument  
4           comprises updating the calibration history only for those types of  
measurements belonging to the sub-set of all measurement types that the  
instrument can make.
- 2           31.     The computer readable memory device as recited in claim 20, wherein the  
instruction of determining instrument calibration status comprises  
4           determining the calibration status for only frequencies belonging to a sub-  
set of all frequencies or frequency ranges for which the instrument is  
capable of making a measurement.
- 2           32.     The computer readable memory device as recited in claim 31, wherein the  
instruction of calibrating the instrument comprises calibrating for only  
4           frequencies belonging to the sub-set of all frequencies or frequency ranges  
for which the instrument is capable of making a measurement.
- 2           33.     The computer readable memory device as recited in claim 32, wherein the  
instruction of updating the calibration history stored by the instrument



4 comprises updating the calibration history for only frequencies belonging  
to the sub-set of all frequencies or frequency ranges for which the  
instrument is capable of making a measurement.

2 34. The computer readable memory device as recited in claim 20, further  
comprising:

4 at preselected times prior to calibration due time for the instrument,  
notifying the user of calibration due time, wherein the notification is made  
6 automatically by the instrument.

2 35. The computer readable memory device as recited in claim 20, further  
comprising:

4 before the step of calibrating the instrument, obtaining measurement  
history data for the instrument, wherein the measurement history is stored  
6 by the instrument.

2 36. The computer readable memory device as recited in claim 35, wherein the  
step of calibrating the instrument comprises calibrating those paths  
belonging to a sub-set of all measurement paths of the instrument that  
4 conform to a preselected measurement history profile.

2 37. The computer readable memory device as recited in claim 35, wherein the  
step of calibrating the instrument comprises calibrating those types of  
measurements belonging to a sub-set of all measurement types that the  
4 instrument can make that conform to a preselected measurement history  
profile.

38. The computer readable memory device as recited in claim 35, wherein the

2 step of calibrating the instrument comprises calibrating those frequencies  
belonging to a sub-set of all measurement frequencies or frequency ranges  
4 for which the instrument is capable of making a measurement that  
conform to a preselected measurement history profile.

39. An instrument, comprising:

2 a measurement module configured for measuring parametric values;  
4 a control module attached to the measurement module;  
6 a clock attached to the control module, wherein the control module is  
8 configured for obtaining a clock time from the clock;  
10 a calibration memory attached to the control module, wherein the control  
module is configured for obtaining instrument calibration information  
12 stored in the calibration memory, wherein the control module is  
configured for storing instrument calibration information in the  
14 calibration memory, and wherein the instrument calibration information  
comprises information identifying the time instrument calibration is due;  
16 and  
18 an indicator attached to the control module, wherein the control module  
is configured to actuate the indicator so as to inform an operator when the  
20 clock time is past the time the instrument calibration is due.

40. The instrument as recited in claim 39, further comprising:

2 a calibration history memory attached to the control module, wherein the  
4 control module is configured for obtaining instrument calibration history

6 stored in the calibration history memory, wherein the control module is  
configured for storing instrument calibration history in the calibration  
8 history memory, and wherein the instrument calibration history comprises  
information identifying a time the instrument was calibrated.